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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/528,388	03/18/2005	Ari Karkkainen	4090-11	4684
23117 7590 12/24/2009 NIXON & VANDERHYE, PC 901 NORTH GLEBE ROAD, 11TH FLOOR ARLINGTON, VA 22203				
EXAMINER				
KALAM, ABUL				
ART UNIT		PAPER NUMBER		
2814				
MAIL DATE		DELIVERY MODE		
12/24/2009		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/528,388

Applicant(s)

KARKKAINEN, ARI

Examiner

Abul Kalam

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 November 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-53 is/are pending in the application.
- 4a) Of the above claim(s) 2-13, 15-20, 24-28, 30-37, 43, 44 and 46-53 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 14, 21-23, 29, 38-42 and 45 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on November 4, 2009, has been entered.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1, 14, 21-23, 29, 38-42 and 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanisawa (US 5,478,778; previously cited by applicant) in view of Iha (2001/0014429; previously cited by Applicant).

With respect to claim 1, Tanisawa teaches a substrate-based assembly for carrying optical and/or electrical components (Fig. 4), the assembly comprising:

a substrate (1, Fig. 4);

at least one optical component (31, Fig. 4) assembled with at least one different component (5 and 8) for use together in providing a function in use of the assembly (col. 4, lines 27-40);

a packaging layer (33, Fig. 4) for said assembled components, the assembled components (5, 8 and 31) and the packaging layer (33) being carried by the substrate (1);

wherein the packaging layer (33) comprises a glass material (silica, col. 4, line 59) and is provided with at least one recess (openings in layer 33 where electrodes 22 are formed; col. 5, lines 11-15) for use in assembling said components (col. 5, lines 7-51).

Thus, Tanisawa discloses all the limitations of the claim with the exception of explicitly disclosing wherein the packaging layer comprises a hybrid glass material having both organic and inorganic components.

However, Iha discloses a packaging material for optical and electrical components, wherein the packaging layer comprises a glass material having both organic and inorganic components (§ [0017]-[0020]). Such a hybrid glass material, as disclosed by Iha, improves the reliability of a package by preventing shrinkage, diffusion of conductive components and gelation (§ [0019]).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention, to incorporate the teaching of Iha into the device of Tanisawa, to form the package layer using a hybrid glass material, which comprises both organic and

inorganic components, for the disclosed purpose of improving the structure and reliability of the package (¶ [0019]).

With respect to claim 14, Tanisawa discloses wherein said at least one optical component (31) is bump bonded (Fig. 4).

With respect to claim 21, Tanisawa discloses wherein said at least one different component (5, Fig. 4) comprises an electronic device (semiconductor chip, col. 6, lines 47-48).

With respect to claim 22, Tanisawa discloses wherein the electronic device (5, col. 4, lines 47-48) comprises an integrated circuit (it is well known and obvious for semiconductor chips to contain integrated circuits).

With respect to claim 23, Tanisawa discloses wherein the optical component (31) comprises an active optical component (laser diode array, col. 4, lines 35-36) and said at least one different component (5 and 8) comprises a passive optical component (8).

With respect to claim 29, Tanisawa discloses wherein the at least one recess (openings in layer 33 where electrodes 22 are formed, Fig. 4) comprises an aperture to give access to an electric interconnect structure (23).

With respect to claims 38 and 39, Tanisawa discloses wherein said at least one optical component (31) comprises an active optical component, such as a laser (col. 4, ln. 35-36).

With respect to claims 40-42, Tanisawa discloses wherein said at least one recess (openings in layer 33 wherein electrodes 22 are formed, Fig. 4) comprises an

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aperture to give access to an electrical interconnect structure (23) and wherein the active optical component (31) is bump-bonded or flip-chip mounted (Fig. 4) in the assembly to provide the electrical interconnect structure (23); and wherein the active optical component comprises a laser (col. 4, ln. 35-36), the assembly further comprising an optical modulator (8, Fig. 6) external to the laser (col. 4, lines 35-40).

With respect to claim 45, Tanisawa teaches an opto-electronic equipment (Fig. 4) comprising a substrate based assembly (col. 4, lines 27-40).

Response to Arguments

2. Applicant's arguments filed November 4, 2009, have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Abul Kalam whose telephone number is (571)272-8346. The examiner can normally be reached on Monday - Friday, 9 AM - 5 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael M. Fahmy can be reached on 571-272-1705. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/A. K./
Examiner, Art Unit 2814

/Wael M Fahmy/
Supervisory Patent Examiner, Art
Unit 2814